

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
6 May 2005 (06.05.2005)

PCT

(10) International Publication Number  
**WO 2005/039590 A1**

- (51) International Patent Classification<sup>7</sup>: **A61K 31/52, A61P 29/02**
- (21) International Application Number: **PCT/US2004/035396**
- (22) International Filing Date: 21 October 2004 (21.10.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
60/513,844 21 October 2003 (21.10.2003) US
- (71) Applicant (for all designated States except US): **INSPIRE PHARMACEUTICALS, INC.** [US/US]; 4222 Emperor Blvd., Suite 470, Durham, NC 27703 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **PLOURDE, JR., Robert** [US/US]; 102 Hillspring Lane, Chapel Hill, NC 27516 (US). **SHAVER, Sammy Ray** [US/US]; 614 Hollow Court, Chapel Hill, NC 27516 (US). **ABREO, Melwyn Anthony** [US/US]; 3373 Armagosa Way, Jamul, CA 91935 (US). **ALFARO-LOPEZ, Lorenzo Josue** [MX/US]; 535 Avenida Aguila, San Marcos, CA 92069 (US). **FENG, Yangbo** [CN/US]; 128 Day Lily Drive, Jupiter, FL 33458 (US). **KHASANOVA, Tatyana V.** [RU/US]; 16633 Deer Ridge Road, San Diego, CA 92127 (US). **HOLLADAY, Mark W.** [US/US]; 11371 Woodcraft Way, San Diego, CA 92131 (US).
- (74) Agent: **KUNG, Viola T.; HOWREY SIMON ARNOLD & WHITE, LLP**, 2941 Fairview Park Drive, Box 7, Falls Church, Virginia 22042, Falls Church, VA 22042 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:  
— with international search report  
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: NON-NUCLEOTIDE COMPOSITIONS AND METHOD FOR TREATING PAIN

(57) Abstract: The present invention is directed to a method of treating pain. The method comprises administering to a subject a pharmaceutical composition comprising an effective amount of a P2X receptor antagonist. The methods of the present invention are useful in reducing pain, such as traumatic pain, neuropathic pain, organ pain and/or pain associated with diseases. The P2X receptor antagonists useful for this invention are non-nucleotide compounds of general Formula I. Compounds of Formula I can be used alone to treat pain. Compounds of Formula I can also be used in conjunction with other therapeutic agents or adjunctive therapies commonly used to treat pain, thus enhancing the therapeutic effect of pain reduction.